Selected Abstracts from the 65th Annual Scientific Conference, held in Melbourne, 23-26 November 2008

OPENING ADDRESS

Hon Prof Barry Jones AO

Hon Prof Barry Owen Jones, AO, is one of Australia's living treasures as well as a writer, broadcaster and former Labour politician. His career has spanned education, science, film, politics, civil liberties, constitutional change and 'the knowledge society'.

Barry represented the federal seat of Lalor between 1977 and 1998 and in the Hawke Government became Australia's longest serving Science Minister (1983-90). He served as National President of the Australian Labour Party 1992-2000 and again 2005-06.

He is the only person to have been elected as a Fellow of all four Australian learned Academies: Technological Sciences and Engineering (FTSE) in 1992, the Humanities (FAHA) in 1993, Science (FAA) in 1996 and Social Sciences (FASSA) in 2003.

His books include Macmillan Dictionary of Biography 1981 and Sleepers Wake! Technology and the Future of Work 1982. His autobiography, A Thinking Reed, was published in 2006.

Barry serves on the boards of CARE Australia, the Macfarlane Burnet Institute, The Centre for Eye Research, Australia and chairs Vision 2020 Australia and the Port Arthur Historic Site Management Authority. He is currently a Professorial Fellow at the University of Melbourne.

A VISION FOR ORTHOPTICS: AN OUTSIDER'S PERSPECTIVE

Stephen Vale
Royal Victorian Eye and Ear Hospital

In 1987, the OAA Council decided that a lecture, to be known as the Patricia Lance Lecture, should be inaugurated in 1988 and that this be presented at the Annual Scientific Conference by an individual prominent in the field of vision science or eye health care. Previously, orthoptists and sometimes ophthalmologists have been invited to deliver this lecture, however, given the current climate of change in eye health care, it was decided to seek and benefit from the perspectives of someone with 'outside' experience who is responsible for guiding the development of our profession and our place in the health sector in which we work. Stephen Vale is the Executive Director of Ambulatory Services at the Royal Victorian Eye & Ear Hospital, and has a close association with the Department & Clinical School of Orthoptics and the services that the hospital's orthoptists provide.

BASE-TO-BASE PRISM TEST : IS IT A VALID ASSESSMENT FOR AMBLYOPIA?

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Determining monocular visual acuity is a definitive part of the detection, assessment and management of amblyopia. However, obtaining a quantifiable measurement of vision is not always possible in the paediatric population. Fixation preference upon cover testing is therefore often relied upon to estimate visual function. However, this is generally an option in the presence of manifest strabismus. For patients without manifest strabismus, 'prism-induced tropia testing' can be used. The vertical base-down prism test has been described in the literature with varying reports of sensitivity, most suggesting that the vertical prism test tends to over-diagnose amblyopia.

At the Royal Children's Hospital, the orthoptic team utilises horizontal base-in prisms in front of each eye to determine fixation preference. We know this technique as the "base-to-base prism test" (BBPT), where base-in prisms of 12 Δor 15 Δare held before each eye simultaneously whilst the patient fixates a near target. The patient's fixation preference is then observed. However, to our knowledge no study has investigated the use of horizontally placed prisms in the assessment of fixation. This study aims to investigate the validity of the BBPT in assessing fixation preference in patients. The preliminary results will be presented and discussed.

THE USE OF DISTANCE STEREOACUITY ASSESSMENT IN DETERMINING THE EFFECTIVENESS OF MINUS LENSES IN INTERMITTENT EXOTROPIA

Connie Koklanis[1,2], Karen Zhang[1], Zoran Georgievski[1,3]
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3 Department and Clinical School of Orthoptics, Royal Victorian Eye and Ear Hospital

Minus lens treatment has been advocated for intermittent exotropia, X(T), to prevent progression and has been found to be effective in improving the control of the deviation in the distance. However, the effectiveness of this treatment is difficult to ascertain due to the lack of standardised outcome measures. There are no guidelines as to what minus lens strength should be prescribed to achieve the best possible outcome. So, there is a need for an accurate and objective outcome measure.

Distance stereoacuity has been reported to be a reliable assessment of control of X(T). In this study, its role as an outcome measure in the efficacy of minus lens treatment was examined using the Frisby-Davis Distance (FD2) stereotest. The FD2 test is a relatively new real-depth distance stereotest, which provides a reliable measure, and is easily administered and comprehended.

Twenty-four (n=24) patients with X(T)participated. Their distance stereoacuity was tested with the FD2 at baseline, and then with varying minus lens powers (of -1.00, -2.00 and -3.00D) that were tested randomly, as were the distance binocular visual acuity (BVA) and angle of deviation.

The results were that the varying minus lens powers did not have significant effects on the distance stereoacuity and BVA (though as expected, they did influence the angle of deviation). In fact, both measures of binocularity - distance stereoacuity and BVA - tended to diminish with the stronger minus lens power of -3.00D. Participants actually demonstrated difficulty in accommodating through the stronger lenses. The conclusion of this study was that distance stereoacuity (and BVA) cannot be used to determine the optimum minus lens strength that could be used in these patients to reduce the angle of deviation and regain binocularity in the distance. An additional observation was made that stronger lenses should perhaps be avoided to prevent binocular and visual discomfort.

PRACTICE PATTERNS OF ORTHOPTISTS IN THE MANAGEMENT OF INTERMITTENT EXOTROPIA

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3 The Royal Children's Hospital
4 The Royal Victorian Eye and Ear Hospital

The management of intermittent exotropia (XT) tends to be surrounded by controversies as evident in the literature and little is known about what individual clinicians or our colleagues actually do in practice, except 'a variety of things'. The aim of our wider investigation is to ascertain the surgical practice patterns of ophthalmologists in the treatment of intermittent XT, however, this presentation focuses on the practices or recommendations of orthoptists. Orthoptists work alongside ophthalmologists in the management of strabismus and therefore influence treatment practices, particularly those concerning non-surgical aspects.

A survey was distributed to attendees of the Australian and New Zealand Strabismus Society Meeting in Adelaide 2008, as well as a further small selection of orthoptists working in strabismus practice who did not attend the meeting. The focus of the survey was on assessment that influences surgical management, monitoring and indications for surgery and or orthoptic treatment. Thirty-six orthoptists completed the survey, and the results of this will be reported. The clinical assessment of intermittent XT and the role of orthoptic management will be discussed.

AN UNUSUAL RECOVERY PATTERN OF A DIABETIC IIIRD AND VITH N PALSY.

Liane Wilcox
Eyetreat
Discipline of Orthoptics, Faculty of Health Sciences, University of Sydney

The recovery from an ocular motility nerve palsy caused by a diabetic cranial neuropathy frequently follows a pattern of improvement that can take up to six months. During the recovery phase the patient is encouraged to practice excursions of the affected eye to hasten recovery. Fresnel prisms and/or occlusion are utilized to deal with the resulting diplopia until the ocular motility nerve palsy has recovered.

An interesting presentation of ocular motility nerve palsy in a diabetic type 1 patient highlights the variability that can exists in the recovery of these types of nerve palsies. This patient presented with a 15 year history of a sudden onset R VIth N palsy which appeared to be caused by his uncontrolled diabetes. The R VIth N palsy showed only minor improvement with a large esotropia persisting which required the use of base out prisms to control the resulting diplopia. The recent development of a R IIIrd N palsy from the diabetes required a re-evaluation of this man's prismatic requirements.

More than six months on the IIIrd N palsy has completely recovered and the patient has straight eyes and full ocular motility.

TRACHOMA & INDIGENOUS EYE HEALTH

Professor Hugh R. Taylor AC
Harold Mitchell Chair of Indigenous Eye Health
Melbourne School of Population Health
The University of Melbourne

Although we do not have a clear picture of the current situation in Aboriginal eye health, the data that do exist suggest rates of blindness 10 times that of mainstream and rates of poor vision possibly 24 times as high. Most vision loss in Indigenous communities is either avoidable or preventable with refractive error, cataract, diabetic retinopathy and trachoma as the leading causes. As the first step to develop appropriate and sustainable eye care services, a national survey of Indigenous eye health is being undertaken. This survey has identified 30 sites across the country using a multi-stage random cluster sampling technique. It will examine children aged 5 – 15 years and adults over the age of 40 to determine the frequency of visual impairment and its causes. Additional information will identify the impact of visual impairment in Indigenous communities and other studies are designed to quantify the availability and utilisation of existing eye care services. Amongst these diseases stands trachoma, a national disgrace. We need specific commitment to eliminate blinding trachoma by implementing the SAFE Strategy. The ultimate objective of this work is to change eye care delivery to "close the gap" in eye care for Indigenous Australians.

THE PREVALENCE OF HETEROPHORIA IN A POPULATION-BASED STUDY: A PRELIMINARY REPORT FROM THE SYDNEY PAEDIATRIC EYE DISEASE STUDY (SPEDS)

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Method: SPEDS is intending to recruit 3,000 children from 3 randomly selected postcodes. Households are enumerated to determine eligible children and participating families sign an informed consent letter. Each child undergoes a comprehensive eye examination and phoria status is determined by alternate cover test/prism cover test at 33cms and 3-6ms. Children with tropia were excluded from analysis. Cycloplegic refraction (cyclopentolate) was performed by autorefraction (Canon RK-F1 or Retinomax) or by retinoscopy. Ethnicity was determined by self-administered questionnaire and birth parameters ascertained from the child's NSW Personal Health Record. Preliminary data from the first site only is presented here.

Results: In 1324 children aged 5 to 107 months; exophoria was the most prevalent phoria for near and initially increased with age; 54.8% at <12 months to 68.9% at ≥24 to <36 months and stabilising at an average 74% for older children. At distance, in children <12 months, exophoria (55.8%) was more common than orthophoria (43.2%). However, in older children orthophoria was most prevalent, with the proportion progressively increasing with age, rising from 53.9% in the group aged ≥12 to <24 months to 62.7% in children ≥72 months. Conversely, the prevalence of exophoria at distance progressively decreased with age. Overall, esophoria was rare (0.04% at near, 0.02% at distance).

Conclusion: The increasing proportion of orthophoria at distance with age suggests that the process of orthophorisation for distance phoria begins after the age of 12 months.

THE VISUAL OUTCOMES OF PAEDIATRIC OCULAR INJURIES

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Purpose: Investigation of outcomes for children with open or closed globe injury.

Methods: Medical records of children <16 yrs presenting at Children's Hospital Westmead with a globe injury during 1999-2007 were examined retrospectively. Excluding those still undergoing recovery or with a pre-existing ocular condition in the injured eye (excluding refractive error), 194 eligible records were identified. Injuries were classified according to The Ocular Trauma Group's1 classifications. Age at time of injury, gender, eye involved, place, mechanism and type of injury, initial visual acuity (VA), management and complications were recorded. Outcome VA was the best-corrected VA measured at the child's last review. Confidence intervals (CI) around proportions are 95% intervals calculated by the Confint program PEPI.

Results: Globe injuries occurred more frequent in males (76.8%) than females (23.2%) and most frequently in children aged 4-5 years (12.4%). 57.2% were closed globe and 42.8% open injuries, the latter resulting in eye removal in 12 cases. Excluding 21 cases without VA recorded at final review, outcome VA was ≥6/12 in 76.4%. Overall VA <6/60 occurred in 20 cases but 75% of those cases had an open globe injury. Conversely, 85.3% of closed globe injuries achieved a VA outcome ≥6/12, a significantly higher proportion than those with an open injury (63.6%, 95% CI 7.25-35.92).

Conclusions: Globe injuries occurred more frequently in males, and the 4-5 year age group. Open injuries had significantly poorer outcomes than closed, both in terms of eye loss and VA.

1 Pieramici DJ, et al., Am J Ophthalmol. 1997 Jun;123(6):820-31.

EYE PLAY SAFE – THE RATIONALE AND DEVELOPMENT OF AN EYE INJURY REDUCTION PROGRAM FOR CHILDREN.

Louise Brennan
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Eye injury is a major cause of monocular blindness worldwide. Eye injury as a cause of blindness is incomparable as the majority of cases could be prevented by fairly simple changes in situations and behaviours.

Children commonly suffer eye injuries despite the fact that they are a group that should have high levels of supervision with little access to environments and implements which cause harm.

The benefit of health promotion is recognised and when targeted at paediatric populations can potentially reduce the incidence of preventable eye injury and disease.

The proposed project EYEPLAYSAFE along with a review of the literature and the preliminary findings of a retrospective study (1998-2008) into eye injuries at The Children's Hospital at Westmead will be discussed.

FACTORS ASSOCIATED WITH SURGICAL OUTCOMES FOR RESIDUAL OR RECURRENT ESOTROPIA

Cathy Lewis[1], Thong Le[1], Connie Koklanis[1,2], Zoran Georgievski[2]
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Residual or recurrent esotropia is a common occurrence after initial surgical intervention for the correction of infantile or acquired esotropia. Whilst various studies have investigated the rate of re-operation and factors that may predispose patients to the need for further surgery, there is very little research on factors associated with surgical outcomes of re-operation. The aim of this study was to investigate the influence of various clinical, demographic and surgical factors on the outcomes of horizontal reoperation for residual or recurrent esotropia. We retrospectively reviewed the records of patients who underwent a re-operation for esotropia at the Royal Children's Hospital from June 1998 to September 2001. The results of this analysis will be presented.

RESPONSES FROM A VEHICLE SIMULATOR FOR DRIVERS WITH NORMAL VISION AND DRIVERS WITH PERIPHERAL VISION LOSS

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The current Australian licensing authority standards for drivers require peripheral vision to be within the measurements of 120 degrees across the horizontal meridian and 10 degrees above and below the horizontal meridian. There is some doubt that this standard is an essential requirement to meet safe driver practice 1.

This paper reports on the eye movement patterns and driver responses whilst driving in a simulator (speed maintenance, road position and response to signs and traffic lights) of two groups of drivers, 1 those with full peripheral vision and 2 those with reduced peripheral vision. The eye movements are plotted by a tracking system (developed by Hamish McDougall 2,3) which records eye movements that are synchronized to the driving scene observed by the driver.

Preliminary results indicate that the driver responses and eye movement patterns using the simulator vary. Some drivers with peripheral vision loss demonstrated the same skills as drivers with full visual function other drivers made significant errors The outcome indicates that drivers whose responses on the simulator match the patterns of drivers with full vision are likely to drive on-road with the same capability and level of safety. It further suggests that safe driver behavior is linked to other issues such as attitude and cognitive processing.

COMPRESSIVE LESIONS OF THE VISUAL PATHWAYS

Justin O'Day AM

It is always important in patients who present with reduction in central vision to be able to find those patients who may have a compressive lesion of the visual pathways. A prospective trial of patients with pituitary tumours is presented to demonstrate the variability of visual field presentation and to indicate the circumstances in which compressive lesions need to be excluded.

"I CAN'T SEE OUT THE CORNER OF MY EYE" IDENTIFYING FUNCTIONAL VISION LOSS IN CHILDREN.

Sue Silveira
Orthoptic Department, Children's Hospital Westmead

Functional vision loss is a well known clinical phenomenon in which patients present with visual loss of some description, without accompanying signs of organic disease. Usually patient visual behaviour is inconsistent with the visual capabilities demonstrated during assessment.

This paper will present case studies of paediatric patients who have presented with functional vision loss, with an outline of the examination techniques used to reach this conclusion.

ACCUMAP AND OPTIC NEURITIS

Catherine Mancuso
Department and Clinical School of Orthoptics, Royal Victorian Eye and Ear Hospital

The AccuMap uses multifocal objective perimetry to measure multifocal visual evoked potentials (MFVEP) for testing patients with glaucoma. Due to the long testing time and the expense of the AccuMap the use of this equipment has not been wide spread since its introduction in 2003.

The Save Sight Institute at Sydney University is currently conducting a trial of the AccuMap on patients with Optic Neuritis to investigate the protective role of remyelination in optic neuritis. The Royal Victorian Eye and Ear Hospital is a testing site for this trial.

AccuMap results seem to demonstrate visual field changes in optic neuritis sooner than those of subjective perimetry, and those changes may resolve slower on AccuMap results. Some case studies from the patients recruited

in Melbourne will be presented to highlight the differences between performing Humphrey Visual Fields and AccuMap on patients with Optic Neuritis.

AN ORTHOPTIC INSIGHT INTO GRAVES ORBITOPATHY

Katrina Rogers
Marsden Eye Specialists

Aims: To provide orthoptists with a standardised protocol for assessing patients with Graves orbitopathy.

Methods: A thorough orthoptic and ophthalmic examination is necessary for all patients manifesting ocular complications of Graves Disease. This is essential in determining the presence and severity of the orbitopathy, for monitoring the disease progression and aiding in determining the optimal management plan. Numerous guidelines have been published describing recommended evaluation techniques for the assessment of these patients. These have been amended and added to over time in the attempt to account for all aspects of the disease process. While being varied in their description, generally, these guidelines do not discriminate between the roles of the orthoptist and the ophthalmologist. By combining the four most widely recognised protocols, the Mourits and Rundle clinical activity scores, the NOSPECS and vision inflammation strabismus appearance (VISA) classification systems, we have outlined and identified the main orthoptic duties required in these examinations.

Conclusions: A newly revised, standardised protocol has been established outlining the role of orthoptists in the assessment of patients with Graves orbitopathy. This includes observations, history, visual acuity, intraocular pressures, colour vision, ocular alignment and restrictions, visual fields and fundus photography. Adopting this protocol will ensure that orthoptists examine all aspects of ocular function affected by Graves Disease and encourages a more active participation in patient care.

STROKE AND OCULAR CONDITIONS

Neryla Jolly, Ann Macfarlane
Discipline of Orthoptics, Faculty of Health Sciences, University of Sydney

Stroke is a condition that can affect cortical and brain stem function leading to sensory and motor ocular conditions. Stroke most frequently affects patients in the older age group where ocular conditions are more prevalent. Accurate identification of ocular conditions in a stroke patient and appropriate management strategies can affect their responsiveness to care and recovery. Best practice to achieve patient recovery is vital.

This paper reports on the rate of detection of ocular conditions in an inpatient setting by the orthoptist compared to all health professionals in the unit. It also examines the rate of detection of ocular conditions in existing models of care namely:

1. An inpatient setting where there is an orthoptist
2. An inpatient setting where there is no regular ocular assessment but an eye out patient department exists to which patients can be referred
3. An inpatient setting where there is no regular ocular assessment and patients requiring eye care need to referred out for ocular care.

Management strategies will also be discussed.

Results clearly demonstrated that the presence of an orthoptist in the inpatient stroke unit to assess ocular function enabled greater detection of eye conditions, increased intervention and increased understanding of eye functions. If stroke affected patients are to be assisted with good eye care the inclusion of an orthoptist in the inpatient unit will achieve this goal.

THE PROBLEMS WITH PEDIG

Kristen Saba
Marsden Eye Specialists

A discussion of the PEDIG amblyopia trials, in particular, discussion regarding the problems of applying the research findings in clinical practice and the implications of other amblyopia research results.

THE BIELSCHOWSKY HEAD TILT TEST

Kristen Saba
Marsden Eye Specialists

A discussion of the role of this test in determining the underlying cause of vertical strabismus will be provided. A video presentation of clinical examples will also be included in this talk.

COLOUR VISUAL PROCESSING IN THE MINIATURE BRAIN OF BEES

Adrian G Dyer
Monash University

Studying colour vision allows significant insights into how visual systems operate, but the ability to perceive colour is not unique to primates. Bumblebees and honeybees see ultraviolet, blue and green 'colours', and process information with a brain containing less than 1 million neurons. The bee brain learns colours differently depending upon the specific conditioning procedure, leading to long term colour memory. When bees learn fine colour discrimination tasks then speed accuracy tradeoffs are observed both between individuals, and for groups learning tasks of different degrees of difficulty, suggesting high level 'executive' decision making within the bees' brain for understanding the implications of different problem solving strategies. Between bumblebees and honeybees there appears to a trade off between colour discrimination and visual acuity; suggesting finite limits determined by the number of photons pooled by photoreceptors. The colour discrimination capabilities in honeybees are very similar to that of humans, and colour discrimination is affected by simultaneous or successive viewing conditions. Mapping of bee successive colour discrimination shows a psychometric function that helps explain why plants have evolved distinctively coloured flowers, and the bee brain is able to bind colour information as a predictor of flower temperature, with important implications for what plant species perform best in different environments.

THE WAY WE LOOK AT FACES: VARIATIONS & IMPLICATIONS

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2 School of Human Communication Sciences, La Trobe University

There is little doubt that faces are an important stimulus for our everyday interaction. They afford an understanding of, amongst many things, another's emotional state. Ever thought about what facial features you look at when interpreting a facial expression? It has been shown that ocular fixations which avoid salient facial features – e.g., the eyes, nose and mouth – can preclude accurate labelling of an expression being viewed. There are many cognitive disorders wherein the visual scan path employed in interpreting facial affect is either highly restricted or far-reaching (e.g., in schizophrenia), and in many of these disorders, salient facial features are avoided. The consequence of such misinterpretation is that social interaction can also be impaired. This type of anomaly in the scan path to faces is noted in patients with social phobia, Alzheimer's disease, Huntington's disease and Autism, to name some. Even when the

visual scan path is forcibly restricted in normal individuals, recognising a face becomes impaired (e.g., Henderson, Williams & Falk, 2005). This presentation will provide an overview of the literature to date in the area of facial affect recognition in cognitive disorders. The new direction we are taking with this field of interest will also be discussed.

BONE CONDUCTION TO THE MASTOID BONE – WHAT'S THAT GOT TO DO WITH EYE MOVEMENTS?

Elaine Cornell
Discipline of Orthoptics, Faculty of Health Sciences, University of Sydney

Assessment of utricular function in subjects with vestibular disturbance is complex, especially when a patient is ill or bedridden. Recent research has confirmed that muscle potentials can be recorded from beneath the eye following bone conducted vibration to the skull, and some of this research was presented at the OAA meeting in Perth where we showed that vibration to the top of the forehead at the midline (Fz) produces electrical potentials from beneath the eye that are probably caused by contraction of the inferior oblique muscle.

We have now further developed this research to document the actual eye movements that follow bone conducted vibration to the mastoid bone in healthy subjects, unilaterally and to both mastoids simultaneously. This stimulation typically produces both vertical and horizontal eye movements that are small but reproducible and appear to be related to contraction of the superior oblique muscle/s. These eye movements can help to identify the anatomy and physiology of the vestibulo-cochlear system as well as assist in the diagnosis of vestibular disease.

ELECTRORETINOGRAPHY IN A PAEDIATRIC SETTING – A USEFUL DIAGNOSTIC TOOL

Stephanie Sendelbeck
Orthoptic Department, Children's Hospital Westmead

The Electroretinogram (ERG) records electrical activity of the retina in response to ocular stimulation with light or pattern. The ERG is a test not performed in isolation, but utilised as part of a group of tests which assess visual and retinal function.

Patients are referred to the visual electrophysiology clinic when a diagnosis is uncertain or when the ERG result will help confirm a diagnosis. The benefit of the ERG in providing a diagnosis should not be underestimated and can impact patients and families in terms of genetic counselling, schooling choice, low vision training, and future employment possibilities.

A Retrospective review of patients attending The Children's Hospital at Westmead for ERG assessment over a two year period from 2007-2008 was carried out. Results and cases will be discussed.

WHAT WORKFORCE?

Susan Morgan
Department of Human Services

Over the next four decades in Australia, the number of people aged over 65 will almost double. Within just seven years, about 85 percent of labour market growth will come from people over the age of 45. There will be greater competition in the workforce for younger people as growth in the 'prime age' workforce (26 to 40 years) continues to slow. Generational behaviours will see people changing careers as previous generations have changed jobs and whilst the full effects of the ageing population will not be felt for several decades, there are serious implications for business and industry that choose to be complacent. Recruitment and retention strategies are required that respond to the needs of new, existing and old employees.

WHY BURST AT THE SEAMS? – UTILISING ORTHOPTISTS TO ASSIST IN OUTPATIENT EYE REVIEWS

Zoran Georgievski[1,2], Cathy Brunton[1], Anne Hart-Smith[1], Catherine Mancuso[1], Kylie Robinson[1], Lucette Scuteri[1], Julie-Anne Taylor[1], Robyn Wallace[1]
1 Department and Clinical School of Orthoptics, Royal Victorian Eye and Ear Hospital
2 Department of Clinical Vision Sciences, La Trobe University

Discharge and planning related to working out 'who needs to see the Doctor?' pose challenges to outpatient reforms, which we are keen to advance in the public hospital system and at the Royal Victorian Eye & Ear Hospital. With regard to the provision of eye services, Orthoptists have been under utilised and are now increasingly being leaned on to help. It's perfectly reasonable; and as a profession we should want this.

In order to address unmet appointments for patients who required review after 12 months of their previous attendance to our general eye clinics, RVEEH Outpatients has been trialling a process where patients are followed up in an Orthoptist led review clinic. This involves Orthoptists assessing patients' vision status, reviewing their medical record, and in consultation with each person, developing a suitable care plan for them that involves either-

discharge to their referring GP if and when appropriate, and or plan to engage an optometrist in their care who is more likely to be conveniently located near the patient's home; or

triage back to the general eye clinic so as to receive more timely ophthalmological attention as required.

In all instances, the patient's GP is informed of the suggested care plan so that appropriate multidisciplinary care needs are met.

Owing to increasing demand for appointments by new patients, this Orthoptist led initiative provides a means for patients who have non-acute eye conditions or require infrequent ophthalmological attention to be reviewed in a more timely manner. In turn, it also permits better access for new patients who require care by an Ophthalmologist in the general eye clinics.

An outline and review of this new clinic initiative will be presented and discussion invited.

ORTHOPTIC DIABETIC EYE SCREENING IN THE HOSPITAL SETTING – THE NEXT GENERATION MODEL

Catherine Mancuso[1], Zoran Georgievski[1,2]
1 Department and Clinical School of Orthoptics, Royal Victorian Eye and Ear Hospital
2 Department of Clinical Vision Sciences, La Trobe University

In 1997, the Ophthalmology Department at St Vincent's Hospital Melbourne was closed. This left a large number of diabetic patients without a public hospital point of contact for their routine eye assessment. In response, an Orthoptic led diabetic screening clinic was established with the support of an ophthalmologist as a clinical lead. Due to internal logistical and funding issues, in October 2007 and following 10 years of operation this service was also closed.

With recent initiatives to enhance the scope of Orthoptists' work in this important area, and owing to the close proximity of the Royal Victorian Eye & Ear Hospital and St Vincent's Hospital, a collaborative and 'next generation' model is being developed to assist with diabetic patient eye care in which Orthoptists have a leading role.

The set-up and operation of this diabetic retinopathy screening clinic initiative will be discussed, in particular the involvement of the three stake-holder groups.

DEVELOPMENT OF A FAST TRACK CATARACT CARE MODEL TO IMPROVE ACCESS TO SURGERY

Cathy Brunton, Linda Miln, Zoran Georgievski
Royal Victorian Eye and Ear Hospital

A Fast Track Cataract clinic has been developed at the Royal Victorian Eye & Ear Hospital in alignment with one of the general eye clinics. The intention of this clinic was twofold. Firstly, it would expedite patients who needed or would benefit from cataract surgery, thus reducing waiting times. Secondly, by reducing the number of postoperative review visits, this freed up clinic appointments for other new patients.

Between May 2007 and June 2008, 981 patients with a referral to Outpatients for cataract were seen in the Fast Track Cataract clinic. The clinical path was designed to provide a patient-focused journey through the continuum of care. Each patient's journey was streamlined to consist of one visit preoperatively (Orthoptist assessment including A-scan and Ophthalmologist assessment); surgery performed under topical anaesthetic (eliminating the need to fast); and reduced postoperative follow-up appointments, resulting in improved access to both outpatients and surgery.

The Fast Track Cataract model was evaluated in terms of access to care (reduced waiting times), safety (patients meeting selection criteria, use of topical anaesthetic), outcomes (visual acuity) and patient satisfaction.

The results will be presented and show that this alternate clinical path is an efficient, safe and effective method for many cataract patients to gain access to outpatients and surgery.

ORTHOPTIC INVOLVEMENT IN IMPROVING POSTOPERATIVE CATARACT CARE

Julie-Anne Taylor[1], Cathy Brunton[1], Zoran Georgievski[1,2], Catherine Mancuso[1]
1 Department and Clinical School of Orthoptics, Royal Victorian Eye and Ear Hospital
2 Department of Clinical Vision Sciences, La Trobe University

Worldwide, in recent years, there has been a shift towards reducing the number of postoperative visits for cataract surgery patients. Benchmarking has highlighted that many eye hospitals around the world review patients twice in the period following their cataract surgery.

The Royal Victorian Eye & Ear Hospital is an important training facility for ophthalmology registrars in Australia, and has mostly provided three Doctor reviews – at day 1, week 1 and week 4 postoperatively. We are presently scoping the possibility of reducing visits and or waiting times for patients, which may involve Orthoptists having greater responsibility in their postoperative care.

For the past 6 months, a new postoperative cataract care pathway has been trialled, whereby the patient is reviewed by an Ophthalmologist (or registrar) at day 1, by an Orthoptist and Ophthalmologist at week 1, and by an Orthoptist only at week 4, which includes refraction and prescription of glasses, and appropriate discharge… hopefully.

An outline and review of this new clinic initiative will be presented, the challenges experienced will be shared, and discussion invited.

DEVELOPING A SUSTAINABLE WORKFORCE IN VISION AUSTRALIA.

Jane Ellis, Graeme Craig
Vision Australia

The amalgamation of 7 low vision and blindness agencies in Australia has lead to a review and redevelopment of services designed to meet clients' needs regardless of geographic location, proximity to service centres and specialist staff. Vision Australia recognises the growing need of the community in the area of low vision services and is committed to being a leader in the provision of these services now and in the future. We believe that the best services for clients is through a continuum of care and a life stages approach which can be best facilitated if we are able to meet aspects of the clients vision needs.

Low vision services represents the full range of support and training needs for clients including counselling, equipment, employment, training, education, independent living solutions and orientation and mobility.

While the service may be straight forward and delivered in a short term package it is critical to Vision Australia as it is the largest section of our client group, it will connect this group to Vision Australia and our work and, when done well, it will facilitate ongoing independence in the community for this group of clients. This paper will also outline the challenge for the future of sustainable services with increasing demand and geographic expansion.

THE NEW SECONDARY LEVEL LOW VISION CLINIC AT THE ROYAL VICTORIAN EYE AND EAR HOSPITAL: AN OVERVIEW OF CURRENT DEVELOPMENTS.

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A new secondary level low vision clinic was established at the Royal Victorian Eye and Ear Hospital (RVEEH) in Melbourne, with the first patient seen in May 2008. The clinic provides continuum of care for patients of the hospital where such on-site services were unavailable in the past. The model of care includes multi-disciplinary service provision by ophthalmologists, orthoptists, optometrists and low vision advisors. Affiliated organisations include: RVEEH, Centre for Eye Research Australia (CERA), La Trobe University Department of Clinical Vision Sciences, Guide Dogs, Vision Australia, and the Victorian College of Optometry.

The aim of this presentation is to provide a background rationale for the establishment of this low vision clinic, to describe the model of care, and to provide an overview of the patients who have attended the clinic thus far. Case studies will also be presented to illustrate the service and benefits to the patients with low vision.

DEVELOPMENT OF A CLINICAL SCHOOL TO IMPROVE CLINICAL EDUCATION AND THE GRADUATE WORKFORCE IN ORTHOPTICS

Zoran Georgievski[1,2], Kerry Fitzmaurice[1,] Stephen Vale[2]
1 Department of Clinical Vision Sciences, La Trobe University
2 Department and Clinical School of Orthoptics, Royal Victorian Eye and Ear Hospital

Providing quality clinical education to University-based students in allied health is a significant challenge, which doesn't seem to get any easier. This is coupled with the need (and pressure) to provide a ready and capable graduate workforce to help the chronic shortage of allied health practitioners, including Orthoptists, who are needed to provide quality health care.

The education and health sectors have and are recognising that we might have 'moved too far' some years ago, toward higher education, and are responding to this by creating partnerships between universities and health providers to form 'Clinical Schools'. Whilst medicine and dentistry largely retained theirs, nursing has returned to the Clinical School model and allied health professions are following suit. In 2008, La Trobe University and the Royal Victorian Eye & Ear Hospital established a Clinical School of Orthoptics within the hospital.

This presentation will outline the Clinical School of Orthoptics model and some of the benefits gained so far. The need to improve clinical education in Orthoptics in order to further our discipline, and remain relevant in the health landscape by continuing to fulfil our professional obligation of providing high quality, evidence-based eye care services to the public will also be discussed.

ENHANCING CLINICAL PRACTICE

Catherine Devereux
Enhancing Practice Program, Council on the Ageing, Victoria

Currently Cath's role is to manage, (in partnership with Northern Health) the Enhancing Practice Program. The Program is funded by DHS Victoria and delivered to a broad range of clinical and non clinical hospital staff around Victoria. This experiential training program challenges organisational culture as well as staff attitudes and behaviours. Participants are encouraged to practice in a more interdisciplinary, age friendly way.

In this presentation the key principles of Enhancing Practice will be applied to Orthoptic education and practice.

THE VALUE OF CASE CONFERENCING TO ORTHOPTIC STUDENTS' CLINICAL LEARNING

Kylie Robinson[1], Zoran Georgievski[1,2], Catherine Mancuso[1]
1 Department and Clinical School of Orthoptics, Royal Victorian Eye and Ear Hospital
2 Department of Clinical Vision Sciences, La Trobe University

The Royal Victorian Eye & Ear Hospital provides a large proportion (over) of clinical placements to La Trobe University orthoptic students and has the capacity to accept several students at any one time. This allows the rather unique opportunity for students to support and learn from each another, if encouraged to do so.

Case conferencing between students has been introduced this year to those on clinical placement within the Department & Clinical School of Orthoptics. The aim of this initiative was to enhance students' clinical education experience, to augment their learning through each other's individual experiences too, and to ensure better use of clinical placement time over and above their contact time with patients.

Case conferencing is used by clinicians to further patient care and is increasingly being encouraged by health authorities for that purpose. Introducing students to case conferencing teaches them about the importance of this and benefits their clinical learning. Student evaluation of this initiative has been undertaken, is positive and the results will be reported.

DEVELOPMENT OF A BIONIC EYE

Dr Chi Luu
Centre for Eye Research Australia, University of Melbourne

Blindness has a significant impact on individual's quality of life and the social economy. The two major causes of blindness associated with the loss of photoreceptors are retinitis pigmentosa (RP) and age-related macular degeneration (AMD). Worldwide, there are about 1.5 million people suffer from RP, which makes it the leading cause of inherited blindness. Age-related macular degeneration, on the other hand, is the major cause of blindness in Western countries. For example, in Australia, AMD is responsible for 48% of blindness in persons over 40 years of age. At present, there is no effective treatment for most of patients with RP or AMD.

In RP and AMD, the outer retinal neurons (photoreceptors) are profoundly lost, however, the inner retinal neurons are relatively preserved. The bionic eye is developed to allow visual information can be directly delivered to the remaining intact inner retinal neurons bypassing the damaged retinal photoreceptors with the hope to restore useful vision for these patients.

This presentation will provide an introduction to various components of the retinal prosthesis and how the bionic eye works. Preclinical studies on surgical approach for intraretinal implantation, biocompatibility, safety and efficacy of the device will also be presented. The presentation will also highlight the development of the future generation of a high-resolution retinal prosthesis, which is currently being carried out by the Bionic Vision Australia.

RETINAL MICROVASCULAR SIGNS IN ACUTE STROKE

Julie Ewing, Michelle L Baker, Peter J Hand, G Liew, E Rochtchina, TY Wong, P Mitchell, RI Lindley, JJ Wang
Centre for Eye Research Australia, University of Melbourne

Retinal Vascular Imaging Centre, Centre for Eye Research Australia, University of Melbourne It has long been suspected that retinal vessels could give clues about a person's systemic health. The retina is the only place where blood vessels can be viewed non-invasively and retinal vessels are known to have similar features to cerebral vessels. Previous population based studies have shown that certain retinal signs can be a predictor of cardiovascular disease such as stroke. Both the ratio of the width of veins and arteries and presence of retinopathy can predict strokes independently of other risk factors.

The Retinal Microvascular Signs in Acute Stroke study was performed at two Australian sites (Royal Melbourne Hospital and Westmead Hospital, Sydney) between 2004-2007 and enrolled 705 participants. The study aimed to examine retinal vascular signs in acute stroke patients and their relationship to diagnosis and prognosis of different stroke subtypes. Acute stroke patients underwent retinal photography in addition to standard clinical examinations. Photographs were graded for microvascular signs (eg, focal narrowing, opacification), retinopathy and arteriovenous ratio.

Some preliminary results from this study will be discussed including whether different stroke subtypes are more likely to show retinal signs.

MACULAR HOLE

Manisha Ghai
Vision Group

A macular hole is a full-thickness defect of retinal tissue involving the anatomic fovea, thereby affecting central visual acuity. Macular holes have been associated with myriad ocular conditions. This report will describe the clinical observations and assessment of visual function of patients with macular holes. The clinical presentation of macular holes, their differential diagnosis, and patient management are discussed.

Gass's biomicroscopic classification of macular holes and theory of tangential vitreous traction will be discussed in detail. Pseudomacular holes may be mistaken for macular hole lesions, despite careful clinical examination. Careful biomicroscopic examination with a contact lens and use of the Watzke and laser aiming beam tests help to ensure accurate diagnosis. Newer imaging technology, such as optical coherence tomography, is a very useful in diagnosing and management of macular holes. It helps in staging of macular holes that helps in evaluating surgical intervention. It also helps distinguish true macular holes from pseudoholes and provide additional insight into the pathogenesis of this condition. Surgical management with or without pharmacosurgical adjuncts can improve vision in select cases.

DIFFERENTIAL DIAGNOSTIC TIPS FOR OPTIC NEUROPATHIES

Fleur O'Hare
Centre for Eye Research Australia, University of Melbourne

A case report will be presented to highlight the diagnostic dilemma when presented with clear signs of optic neuropathy in the face of unclear aetiology. Careful consideration of family and medical history along with a thorough clinical examination are required to isolate and dismiss other causes for optic nerve pathology such as hereditary, metabolic and compressive lesions. Consideration of the key differential signs and symptoms will be discussed.

CLINICAL MANAGEMENT OF COATS' DISEASE – A CASE STUDY

Christopher R Drowley[1], Melany Gatens[1], Suzane Vassallo[1,2], Justin O'Day[1]
1 Victoria Parade Eye Consultants, St Vincent's Medical Centre,
2 Dept of Clinical Vision Sciences, La Trobe University

Coats' Disease, also known as retinal telangiectasia, is a rare unilateral retinal vascular disease. Those typically affected are males below 20 years of age. If left untreated, severe and permanent vision loss can ensue due to total exudative retinal detachment. Early intervention and close monitoring remains the most effective way to prevent potential vision loss and the progression to a blind, painful eye.

A 15-year-old healthy male presented to our clinic with one-month history of unilateral blurred central vision. Fundal examination revealed a vascular lesion in his peripheral retina, which resulted in lipid deposits forming in the macular region. He was treated and monitored over an 18-month period. He demonstrated a slow though significant resolution of the maculopathy as well as an accompanying improvement in visual acuity. This case will highlight an appropriate management regime applicable to cases who present early. In these instances, a successful visual outcome can result.

BRIEF SYNOPSIS OF ASTIGMATISM PRESENTATION

Matthew Allison
Alcon

Treating Astigmatism has become the new frontier in Cataract Surgery with the advent of improved biometry, astigmatically neutral wounds and Toric implants. This talk intends to inform about this refractive error, it's components, it's prevalence, it's natural course, it's measurement and it's treatment.

THE AUSTRALIAN CHILDHOOD VISION IMPAIRMENT REGISTER PROJECT. (OZ-VISKIDS)

Dr John Ravenscroft
Royal Institute for Deaf and Blind Children

Children with vision impairment require an integrated and tailored service provision that involves health, education, social work, and voluntary organisations. Accurate and current data of the numbers, causes and level of vision impairment and additional disabilities of children with vision impairments are required to plan and develop such a service. Yet it is one of those curious facts that in Australia we still do not know how many children with vision impairments there are. Meeting the needs of children with vision impairment is a very difficult and expensive business and as such surely having a system such as a register which identifies all children with vision impairment is a significant step in the right direction in order to meet the needs of this specialised target group. This paper will describe the major a research project based at the Royal Institute for Deaf and Blind Children to develop and maintain an Australian wide childhood vision impairment register modelled from the success of the Scottish Vision Impairment Scotland Register. The Australian register will collect data about the incidence and prevalence of childhood vision impairment through survey and active surveillance methodology based upon parent led registration. The register as a tool will enable researchers to investigate the cause and prevention of childhood vision impairment; and enable service providers to more accurately plan for the present and future service provision needs of people with vision impairment.

DOES THE USE OF NULL POINT REDUCE VISUAL FATIGUE?

Kerry Fitzmaurice
Department of Clinical Vision Sciences, La Trobe University

Background: Visual fatigue is a commonly reported symptom associated with nystagmus. Visual fatigue has not been widely studied in relation to vision impairment. However the literature indicates a number of factors causing visual fatigue in the fully sighted population which are exacerbated by vision impairment such as, use of VDT's, close viewing distance, length of time doing near work and lighting and or glare.

Methods: Data on visual fatigue in association with vision impairment has been obtained through two studies. Study one a survey of 39 primary and secondary school students. Study two involving a focus group (n= 7) and two in-depth interviews. Outcomes from these studies are related to data obtained from a retrospective analysis of case data from clients who have undertaken null point training at La Trobe University vision rehabilitation clinic.

Results: The most commonly reported pathology across the visual fatigue studies was nystagmus. The commonly reported signs/symptoms of visual fatigue included tiredness, sore eyes, headache, blurred vision and increased nystagmus. The retrospective client data indicated a post training decrease in print size but more importantly a decrease in symptoms of visual fatigue such as sore eyes and headache.

VISION AUSTRALIA - LOW VISION SERVICES

Jane Ellis, Graeme Craig
Vision Australia

Delivery of quality Vision Australia services depends on having adequate numbers of skilled staff working where they are needed. Addressing the current shortfall in the supply and retention of health professionals must be one of our key priorities for the future. A shortage of staff or uneven distribution of staff limits our clients' access to services.

We need to continue to develop a staff support system that values our workforce as a vital resource and treats staff fairly and with respect. Our workforce in the future will be increased, trained, organised and deployed creatively and intelligently to focus on the changing needs of our consumers, their families and the wider population.

"COLOURS AS STIMULI TO INITIATE VISUAL RESPONSE WITH A CHILD WITH CVI": CASE STUDY

Judy Reese, Natalia Dawson
Vision Australia

Children with Cortical Visual Impairment (CVI) provide us with a unique challenge. Whilst there are agreed characteristics shown by many children with CVI, a number of children have indicated unique preferences and dislikes; particularly to colour.

CVI is a vision impairment caused by the interruption of the posterior visual pathways in the cerebrum. This causes an adverse disruption to the clarity of vision and visual perception. Early identification in determining what motivates these children to use their vision is critical for their development. A collaborative assessment between the Early Childhood Educator, Orthoptist and family is essential in formulating an individualised intervention program.

Much of the literature has indicated that colour vision commonly remains intact for children with CVI. So why do they display such a strong preference or dislike to certain colours? A possible explanation is that colour vision is based on the perception of colour. Colour facilitates and integrates visual form, object perception and recognition. Furthermore, colour plays an essential role in scene segmentation and visual memory. We intend to explore the cortical processes of colour perception. We evaluate the theories behind colour cortical processing, the role of the dorsal and ventral pathways and compare the theoretical knowledge with case studies of joint functional vision assessments of a few children with CVI.

"SEEING THE PERSON, NOT THE ABILITY".

Val Tosswill

Marsden Centre, a residential facility located in Western Sydney, is operated by the Department of Ageing, Disability and Home Care (DADHC). The 200 residents at Marsden have a range of disabilities and, since it opened in 1969, the orthoptist has been an important member of the Allied Health team. The residents have both physical and intellectual disabilities and an orthoptic assessment can prove to be quite challenging. A different side of orthoptic practice will be presented with emphasis on the person as a whole, rather than just another eye patient.

LOW VISION CLINICS – WHAT WOULD YOU DO IF YOUR CLOSEST CENTRE WAS A PLANE FLIGHT AWAY?

Rebecca Schostakowski

I was excited to receive my first position as a full time orthoptist in Townsville, at the northern end of Queensland. One of the first similarities conveyed to me, from patients with reduced and low vision, was that there were little to no low vision services available for them nearby to be effective. Patients who requested more services were being referred to low vision centres in Cairns (a 3 hour drive away) or Brisbane (a 16 hour drive or 2 hour flight away). After discussing the situation with the ophthalmologist with whom I work, I was given permission to start developing low vision services from our private rooms. The following presentation describes the modality in which my clinic runs and the organisation required to establish such a clinic. I will discuss also the first few cases referred to the low vision clinic and which components of low vision treatment were used and appeared to receive a better response from the clients.

I firmly believe the work that I am doing at the low vision clinic is benefiting my clients and hope that even though I am only a recent graduate, my experiences will invite other orthoptists to investigate the range of low vision services in their local areas in order to determine any complimentary information or services they could contribute.

GLAUCOMA- FOCUSING ON THE OPTIC NERVE

Jonathan Crowston
Centre for Eye Research Australia, University of Melbourne
Royal Victorian Eye and Ear Hospital

This talk will focus on the clinical optic nerve examination in glaucoma diagnosis and monitoring. We will cover clinical examination techniques, optic nerve imaging and the how optic nerve assessment techniques vary with stage of the disease.

BIOBANK FOR THE NEURODEGENERATIVE DISEASES OF THE AGING EYE

Fleur O'Hare
Centre for Eye Research Australia, University of Melbourne

The purpose of this presentation is to introduce you to the upcoming launch of a major collaborative project to be staged in Australia (CERA, Melbourne Uni, RVEEH) and the United Kingdom (Moorfields Hospital, NIHR Biomedical Research Centre).

Glaucoma and AMD have complex aetiologies that embody a number of disease subgroups with diverse genetic and phenotypic characteristics. These differences are thought to contribute to differences in disease severity and differences in response to treatments. Previous population studies have lacked sufficient number of cases to accurately characterise disease subgroups.

We aim to establish a biobank from a large clinic-based cohort of glaucoma (n=5,000), AMD (n=5,000) and population based controls (n=10,000). Investigations and key outcomes will be highlighted.

32 YEAR FOLLOW UP PRIMARY OPEN ANGLE GLAUCOMA

Rhonda Turnbull

This case study summarises 32 years of follow-up for a patient with Primary Open angle glaucoma.

The patient presented in 1976 aged 38 years for review of moderate myopia, the IOP was 24 and 20 mmHg, c/d ratio recorded as 0.3 ou, this remained unchanged for 20years. He was diagnosed with ocular hypertension.

The first field test was performed in 1994 and not repeated until 3 years later, since then performed regularly. The first Optic disk photography was taken in 1997, and repeated in 2003. Quantitative optic disk assessment (Heidleberg HRT) was performed in 2000 and 2003. Treatment with Xalatan was commenced in 2003 based on subtle disk rim changes evident from the disk photos and the HRT, and IOP reaching 29mmHg OU, pachymetry was recorded for the first time. Successful, uncomplicated bilateral cataract surgery was performed in 2006, treatment changed to Xalacom after postoperative pressure spike. OCT (OPtovue) Optic nerve head and macular ganglion cell complex thickness (GCC) assessments ('08) show congruent GCC and visual field changes, field loss has been stable since 2003.

This case illustrates a long follow up of a myope initially diagnosed with ocular hypertension who subsequently developed optic disk, visual field and inner retinal changes (POAG). The patient has responded well to ocular hypotensive medication. Many advances in the monitoring and treatment of glaucoma have occurred during the 32 years. The early detection of the development of optic disc changes demonstrated the need for treatment, and will aid the assessment of the ongoing response to treatment.

A COMPLEX CASE OF HEAVY-EYE SYNDROME

Sibel Deler
Orthoptic Department, Children's Hospital Westmead

Patients with unilateral or bilateral high myopia may acquire a typical restrictive motility disorder, resulting in esotropia and often hypotropia. This case presents a 10 year old girl with high myopia and an enlarged globe, amblyopia, esotropia and hypotropia. The clinical findings will be presented

THE THERAPEUTIC USE OF REFRACTIVE LASERS

Terry Couper
Melbourne Excimer Laser Group

The use of the Excimer laser is well known for refractive surgery; however the laser is also used for treating some superficial corneal disorders. Phototherapeutic keratectomy (PTK) has been employed as a surgical tool to treat corneal disease for more than 10 years now. The ability to delay or postpone corneal grafting in superficial corneal dystrophies by performing PTK has multiple benefits for the patients and eye banking resources . Recurrent erosions though are the most common indications for PTK. Map-dot-fingerprint dystrophy or basal membrane dystrophy can also be an indication for PTK. Excimer laser surgery can be successfully combined with conventional surgery to remove excessive scar tissue, Salzmann's nodules and very flaky and coarse band keratopathy.

More recently, in conjunction with the femtosecond laser, cornea anterior lamellar grafts, Descemets Stripping Endothelial Keraotaplasty (DSEK) and penetrating keraotaplasty (PK) are also being performed.

This presentation will briefly outline the recent advances in refractive surgery techniques used for therapeutic purposes.

DOES THE WEARING OF GLASSES AFFECT THE PATTERN OF ACTIVITIES OF CHILDREN WITH HYPEROPIC REFRACTIVE ERRORS: THE SYDNEY MYOPIA STUDY (SMS)

Amanda N. French[1], George Burlutsky[2], and Kathryn A. Rose[1]
1 Discipline of Orthoptics, Faculty of Health Sciences, University of Sydney
2 Centre for Vision Research, Department of Ophthalmology, University of Sydney

Aim: Determine if children with hyperopic refractive errors follow a different pattern of everyday activities than children without refractive error.

Methods: Data from the older SMS sample, Year 7 children (aged 12, n=2367) from 21 randomly-selected high schools across Sydney is examined here. Children had a comprehensive eye examination; including cycloplegic auto-refraction (cyclopentolate 1%, Canon RK-F1). A questionnaire completed by parents and children obtained detailed information on daily activities. Hyperopia was defined as a spherical equivalent (SE) refraction of ≥ +2.00 dioptres (D) and refraction of the eye with the best presenting visual acuity was used. Children wearing contact lenses (5) and those with presenting bilateral visual impairment (visual acuity of the best eye ≤6/12) were excluded from analysis.

Results: Overall, 364 (15.8%) children were classified as having a refractive error. Hyperopia was present in 2.5%, and of these 33.9% wore glasses. 155 of the 1925 children without significant refractive error, wore glasses were excluded. Children with hyperopia who wore glasses did not significantly differ from the reference group in a range of outdoor and indoor activities including playing outdoor sport (p=0.1468), watching T.V. and using computers (p=0.5861) or performing near based activities (p=0.7591). Those that did wear glasses, however, spent significantly less time reading books and engaging in close work (mean 19.3hrs per week) than the reference group (mean 23.6 hrs, p=0.0117).

Conclusions: Children with uncorrected hyperopia spend significantly less time in near work activities than children without refractive error or than those with hyperopia who wore glasses.

CAN VISUAL ACUITY SCREEN FOR CLINICALLY SIGNIFICANT REFRACTIVE ERRORS IN TEENAGERS?

J.F. Leone[1A], A. Kifley[1B], S.H. Sharbini[1A], K.A. Rose[1A]
Sydney Childhood Eye Study. [A]Discipline of Orthoptics, [B]Centre for Vision Research, Department of Ophthalmology and Westmead Millennium Institute, [1]University of Sydney, Sydney, Australia.

Purpose: To examine sensitivity and specificity of visual acuity (VA) measures for screening clinically significant refractive errors in a population-based sample of 12-year old school children.

Methods: The Sydney Myopia Study randomly selected 21 Sydney secondary schools. 2353, Year 7 students (mean age 12.7 years) participated (75.3% participation rate). Uncorrected VA was performed monocularly, at 2.44m using a retro-illuminated logMAR chart (CSV1000). Cycloplegic (Cyclopentolate 1%) auto-refraction (Canon RK-F1) was conducted.

Results: Data for both eyes were pooled for a total of 4670 observations. Best VA cut-off to detect any clinically significant refractive errors was 53 letters (6/6-2), with sensitivity and specificity 72.2% and 93.3% respectively. Screening sensitivities and specificities were then examined for individual refractive errors. VA cut-off for myopia was 45 letters (6/9.5) with 97.8%, 97.1% respectively. VA cut-off for hyperopia was 57 letters (6/6+2) with 69.2% and 58.1% respectively. VA cut-off for astigmatism was 55 letters (6/6) with 77.4% and 75.4% respectively. VA appears to be reduced linearly by myopia, but not for hyperopia. VA at the 6/12 cut-off was sensitive for myopia (92%) but not sensitive for hyperopia (17%) and astigmatism (37%). Specificity was sound for all types of refractive errors 98%, 91%, 93% respectively, at this VA level.

Conclusions: In this adolescent group VA ≤6/9.5 can reliably screen for myopia, however, no VA cut-off will reliability screen for hyperopia and astigmatism. Cycloplegic refraction seems to be the only way to reliably detect hyperopic and astigmatic refractive errors.

RISK FACTORS ASSOCIATED WITH STRABISMUS AND AMBLYOPIA IN A POPULATION-BASED SAMPLE OF 6 AND 12-YEAR OLD AUSTRALIAN CHILDREN: THE SYDNEY MYOPIA STUDY (SMS)

Shahrima Sharbini
University of Sydney, Discipline of Orthoptics, Sydney Childhood Study

Methods: The SMS randomly selected 55 schools; 1739 children aged 6 and 2353, aged 12 (75.3% response rate) participated. Cycloplegic autorefraction, LogMAR visual acuity, cover tests (cover/uncover alternate, prism bar) at near and distance were performed. Medical and perinatal histories, household demographics and ethnicity were obtained by questionnaire. SES was classified by home-ownership and ethnicity was assigned when both parents were from the same ethnicity. Low birth-weight was classified as <2500g.

Results: In the 12 year old sample 63 children had strabismus (2.7%); 44.4% esotropic and 69.8% had amblyopia. Overall, children with strabismus did not have a significantly different birth-weight than those without (p=0.4), however, those with exotropia did have a lower mean birth-weight, even after adjusting for ethnicity (p=0.048). Prevalence of exotropia was higher in children from low SES families (OR, 2.1, 95% confidence interval, CI 1.1-3.9). To examine risk factors such as perinatal exposure to maternal smoking, data from both age samples has been combined, 111 children has strabismus (2.7%) and of these 69.8% had amblyopia. Increased prevalence of strabismus was seen in children with a history of maternal smoking (4.7%) than those without exposure (2.5%, OR 2.1, 95% CI 1.0-4.4), after adjusting for a range of factors esotropia remained significant (OR 2.2, 95% CI 1.1-4.7).

Conclusions: Maternal perinatal smoking was associated with an increased prevalence of strabismus, particularly esotropia whilst low SES was associated with a higher prevalence of exotropia.

POSTERS

DRIVING AND DIPLOPIA

Neryla Jolly, Nathan J. Clunas
Discipline of Orthoptics, Faculty of Health Sciences, University of Sydney

Aim: Diplopia in the central field of vision is regarded to be incompatible with safe driving. This paper presents the impact of diplopia on driving performance of clients with diplopia.

Method: The clinical results and driving skills were tested for 7 patients with diplopia. The clinical results included the cause of the diplopia (IV cranial nerve palsy, mechanical injury), measurement of the area of binocular single vision (including the response for slow and fast eye movements).

The driving skills included observation when driving by a team which included the orthoptist, the occupational therapist and a disability trained occupational therapist. The driver skills that were tested included response to the speed and positioning the vehicle, awareness of driving hazards, road signs and road markings. Commentary driving was also tested.

Results: When diplopia was present inside twenty degrees of central fixation, the driving skills were found to be unsafe. When diplopia occurred outside the central 20 degree ring, driver skills were demonstrated to be safe.

Conclusion: Diplopia that exists inside the central 20 degrees of binocular fixation is a good predictor of safe driving skills.

DRIVING WITH VISUAL ACUITY THAT DOES NOT MEET LICENSING STANDARDS

Neryla Jolly
Discipline of Orthoptics, Faculty of Health Sciences, University of Sydney

Background: Visual acuity measurement is a criterion widely used by medical staff and licensing authorities worldwide to assess eligibility to drive. The current standard is 6/12. The purpose of this paper is to report the on road response of 4 drivers with visual acuity of 6/24 to 6/36.

Method: Four male participants with age related macular degeneration in a study of senior drivers were observed in their off and on road performance at the University of Sydney, Australia. The off road assessment included a questionnaire and tests of sensory and motor function. The on road assessment was a set route and included reporting of road signs and markings.

Results: All four drivers demonstrated poor driving performance for a range of skills including sign identification, road positioning, maintenance of speed and late reaction time. Driving instructor intervention was required for two participants, including stopping the car to avoid collision. All drivers failed to retain their license.

Conclusion: Visual Acuity, at a level of 6/24 to 6/36, is incompatible with safe driving practice in senior drivers. Drivers with acuity at this level or less should have their license cancelled.

THE ROLE OF AN ORTHOPTIST INVOLVED IN INTERNATIONAL CLINICAL RESEARCH TRIALS

Mara Giribaldi
Marsden Eye Specialists

Marsden Eye Specialists is one of the leading centres for clinical research trials in Australia predominantly in Aged Related Macular Degeneration amongst other retinal conditions.

The role for orthoptists in our practice includes becoming certified clinicians in visual acuity, retinal photography, fluorescein angiography and ocular coherence tomography (OCT) according to rigid international standards set by drug companies, research and development departments and reading centres conducting this research around the world.

An overview of clinical research trials and orthoptist involvement is explained whilst extrapolating from it important clinical expertise gained in the above mentioned areas of orthoptic/ophthalmic assessments.

INVASION OF THE INTRA CORNEAL STROMAL SEGMENTS (INTACS/KERARINGS)

Naila Mian, Vivien Lee
Vision Eye Institute Chatswood

This poster has information on what Kerarings and Intacs are, indications and contraindications for use as well as the mechanism of how they work. It will also mention a case study.